

Home Magazine A bright future for waste conversion

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FEATURES - INDUSTRY EVENTS

The 2014 Renewable Energy from Waste Conference highlighted many waste conversion projects and research making progress in North America.

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The Renewable Energy from Waste (REW) Conference attracted nearly 200 people to San Jose, California, in mid-November 2014 for a host of activities including a preconference workshop, two days of educational sessions and tours of two of the leading facilities in the country for processing organic waste and producing energy.



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The city of San Jose was chosen as the location for the conference because of its approach to integrated waste management that has helped triple the city's commercial recycling rate and incorporate dry-fermentation anaerobic digestion (AD) to generate electricity.

During the session "A city with a vision: how San Jose made waste to energy a reality," Stephanie Molloy, the city of San Jose's supervising environmental services specialist for the integrated waste management enforcement and regulations group, explained how the city issued two requests for proposals (RFPs): the first was for commercial waste collection, processing of nonorganics and preprocessing of organics, and the second RFP was for organics processing and management.

The first contract was awarded to Republic Services, based in Phoenix, and the second was awarded to San Jose-based Zero Waste Energy Development Co.

A panel discussion followed with Carl Mennie, division manager - Recycling and Composting, Republic Services; Emily Hanson, director of business development and communications, GreenWaste Recovery & Zero Waste Energy Development Co. (ZWED); and Jeff Draper, senior vice president for the dry-fermentation AD technology provider Zero Waste Energy, Lafayette, California.

Tours of Republic Services' Newby Island Resource Recovery Park (NIRRP) and ZWED were offered to attendees, allowing them a first-hand look at how material is processed.

The integrated approach

From a new mixed-waste processing facility in Alabama to a biofuels facility in Canada, several projects in North America are integrating multiple processes into their management of the solid waste stream. During the REW Conference, several project developers shared how their projects are unfolding in a session titled "The Integrated Model" moderated by Jim Miller, CEO of JR Miller & Associates, Brea, California.

Bud Latta, Edmonton, Alberta's director for business planning and central operations, waste management services, discussed the components of the 550-acre Edmonton Waste Management Centre and how it fits with the city's strategic plan. The center includes 12 waste processing facilities, two research facilities, a closed landfill and sewage biosolids storage/recycling lagoons.

In 2003, the city began exploring the option of turning waste into biofuels. After years of reviewing technologies, obtaining permits and grants and receiving regulatory approval, construction on the biofuels facility began in 2010 and it was commissioned in 2014. The owner and operator of the waste-to-biofuels facility, Montreal-based Enerkem, was only a few weeks away from start-up as of the conference.

The city of Edmonton owns and operates the Integrated Processing and Transfer Facility (IPTF), which processes the feedstock used in the biofuels facility. The biofuels facility is expected to be in full operation in 2015. The city is also working on an AD project to be operating in 2017.

Mike Muller, of BioGas Equity 2 Inc., Woodside, California, discussed a project under construction in Grove City, Ohio, for the Solid Waste Authority of Central Ohio (SWACO), which is being developed by Team Gemini of Orlando, Florida.

Team Gemini was selected by SWACO to develop 365 acres next to a landfill. During the first phase of the public-private partnership, Team Gemini is tasked with building a center of resource recovery and recycling (COR3). SWACO and Team Gemini will share in the cost of new related roadways and the scale house. SWACO is required to divert municipal solid waste (MSW) to COR3. Material that cannot be recycled will be used in the AD and gasification process in phase two.

A streamlined permit process accelerates the project adoption, according to Muller, noting, "You can't steal second base with your foot on first," he noted. Kyle Mowitz, cofounder and CEO of Infinitus Energy,

Plantation, Florida, discussed the Infinitus Renewable Energy Park (IREP) Montgomery, a mixed-waste processing facility in Montgomery, Alabama, which opened in April 2014.

Mowitz said paper and polymers from the facility can be converted into engineered fuel (EF) or recycled. He said the ability to produce an EF provided ultimate flexibility, depending on the markets for baled materials. “You have to be nimble and change quickly to respond to the market,” he said. “Bale quality is very high coming out of the facility,” he added.

Mowitz shared with attendees that as of May 2014 the facility was recovering 90-plus percent of recyclables, including:

- plastics, 96 percent;
- mixed paper, 95 percent;
- old corrugated containers (OCC), 97 percent;
- tin/steel, 94 percent; and
- aluminum cans, 90 percent.

“I’m here to tell you that the quality is very high and we’ve had no rejected loads as of now,” he said.

The acceptance test performed by a third party in May also confirmed a processing rate of 32.36 tons per hour and an overall waste diversion rate greater than 60 percent.

Once all the phases of the facility are implemented, Mowitz estimates the facility will have an overall recovery rate of between 60 and 85 percent. He added that 95 percent of the organic fraction will be converted and taken to a compost and AD system during the second phase.

During phase two, Montgomery’s collection fleet will be converted to use compressed natural gas (CNG) produced at the AD facility.

“The city will actually operate the first carbon-negative fleet in the country,” said Mowitz. The facility is saving the city an estimated \$1.6 million, and once the fleet conversion takes place, the city will be saving about \$2.2 million, according to Mowitz.

Todd Green, general manager of Tulsa, Oklahoma-based American Waste Control’s (AWC’s) waste-to-energy (WTE) landfill shared what he called “a true American success story.”

He told of how Kenny Burkett founded the business with one borrowed truck back in 1970 and now has more than 100 trucks, employs more than 200 people, services more than 2,000 commercial customers and generates more than \$50 million per year in revenue.

In 1987 the company began the first recycling transfer station in Oklahoma, Tulsa Recycle and Transfer (TRT). American Environmental Landfill was purchased in 2000 and is now a renewable energy landfill.

“The three companies have come together with one common goal in a very competitive market, and that is to provide the most cost effective, environmentally sound solution to the clients that we serve,” said Green.

The landfill was designated by the Oklahoma Department of Environmental Quality as the most compliant landfill in the state, according to Green. For the landfill-gas-to-energy project, AWC formed a private partnership with Pittsburgh-based Montauk Energy.

AWC also secured a purchase agreement with the Oklahoma Municipal Power Authority for the power. The facility provides power to 4,500 homes.

“I think we’ve achieved our goal,” remarked Green in conclusion.

Making the case for conversion

Forming strong stakeholder partnerships and understanding the nuances of those partnerships are keys to winning support for waste conversion projects. Those were the views from a panel of speakers who presented their experiences during a session titled “Making the Case for Conversion.”

Session moderator John Skinner, executive director of the Solid Waste Association of North America (SWANA), said winning approval for a conversion project requires involvement from residents, opponents, the media, academia and environmental and regulatory entities in addition to political leaders.

Panelist Craig Cookson, director of sustainability and recycling for the Plastics Division of the American Chemistry Council (ACC), Washington, described how the ACC is working to promote waste conversion technologies, though he said the U.S. waste and recycling industry still has a long way to go to convince those outside the industry that the country should be recovering more energy value from waste.

Cookson referred in particular to plastic packaging that can be difficult to recycle and said the ACC is working to extend the definition of clean energy to include plastics.

“You don’t create this plastic packaging to become energy, but it saves a lot of energy on the way by protecting food, by protecting food waste, by reducing shipping costs and greenhouse gas emissions,” he said. “Think of these materials as fuels or feedstocks, not as waste.”

Cookson added that a simplified permitting processes for waste-conversion projects is needed, and he talked about the ACC’s From Chemistry to Energy campaign to promote energy policy and increase awareness of energy recovery and its efficiency.

In early 2014 ACC launched the Plastics Oil-to-Technology Alliance, currently comprising five members, three of which are technology companies. Cookson said part of the alliance’s work is eliminating confusion about potential WTE feedstocks.

“What we’re not talking about is bottles and containers and other things that have good solid markets,” said Cookson. “We’re talking about things that are a challenge to recycle.”

Cookson said the ACC in 2014 commissioned research at Columbia University, and researchers found that nonrecycled plastics have on average 15,000 Btu (British thermal units) per pound of energy value, “which is greater than pretty much all forms of energy except for natural gas and crude oil,” he remarked.

“That’s a resource that’s worth going after,” he said.

Next, Steven Torres, a partner in the municipal infrastructure group with the law firm Pannone Lopes Devereaux & West, Providence, Rhode Island, discussed the importance of developing well-informed public private partnerships (P3), which he said are key to getting waste conversion projects off the ground.

He said the emergence of the P3 stems from the fact that waste management has traditionally been handled by the public sector, while recycling has traditionally been initiated in the private sector. Meanwhile, the energy conversion technology industry has had to straddle both sectors.

“The public-private partnership in waste and energy is born by the intersection of those two realities in our industry,” Torres said.

Torres said one of the most important facets of a P3 is the presence of “enabling legislation” that allows for the combined design and construction of a conversion project.

“We need to develop legislation to facilitate building these projects,” Torres said.

Torres explained that successful P3s tend to encompass the design, building, financing, ownership and operational factors for each proposed project.

“Those are the true P3s, where industry comes together with the government assets, the government’s ability to regulate curbside collection, the government capability to make a choice on what to do with that valuable resource that we call municipal solid waste and that we call recyclables and reusable items.”

Presenting the case for conversion from the local government perspective was Zack Hansen, environmental health director for Ramsey County in Minnesota.

Hansen said Ramsey County has partnered with nearby Washington County for several years on waste management policies during a time when the state legislature has moved away from landfill use and toward a more integrated solid waste management system.

Hansen said most of the counties’ waste is collected by private haulers, and the counties have had to subsidize the tipping fees at the local waste-to-energy plant in order to remain competitive with the region’s low-cost landfills for the needed volume of waste.

Hansen said now is the time to rethink the WTE plan, which uses 25-year-old technology at the resource recovery facility, but which the counties have the option to purchase in 2015.

“To us it’s expensive,” Hansen said of the current plan. “We think there’s more opportunity with the amount of money we have in the system to do something different.”

He said Minnesota’s already aggressive recycling goals will increase to 75 percent by 2030, indicating its changing policy environment.

“We’ve embarked on a paradigm shift. We’re going to look at this as an asset and a resource,” Hansen said, referring as well to the state’s elected officials and the county’s plan to tie waste conversion in with other goals.

“We have to compete as a region for jobs and prosperity,” said Hansen. “If we can find a way to use these resources locally, that’s what we’re most interested in.”

Currently, he said about 41 percent of the counties' waste is being processed through its resource recovery facility and used to generate electricity. Hansen said the counties could once again benefit from flow control if they purchase the facility and become a public operator, but there are other options to consider.

"We are looking at how to accomplish our goal by working with private vendors," he said.

Hansen said the counties have analyzed what type of facility would be suitable with the current technology, considering policy, governance and financing alternatives. The commission's resulting 10-year plan incorporates more intensive source separation and use of the current facility, while also considering gasification to produce biofuels and mixed-waste processing with anaerobic digestion.

The 2014 REW Conference was held Nov. 17-20, 2014, at the Double Tree by Hilton in San Jose. The program included more than 40 expert panelists who covered topics such as financing, legislation, research and development, anaerobic digestion and corporate achievements in waste conversion. More information about the speakers, vendors and sponsors of the annual REW Conference can be found at www.REWConference.com.

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In case you missed it. More coverage from the 2014 Renewable Energy from Waste conference, including session reporting and videos, are available online at www.REWmag.com. As well, look for information on the 2015 version of the conference. The dates and location will be announced soon.